

CLAIMS

What is claimed is:

1. A method comprising:

5 buffering a set of items, the set of items including a first set of items and a second set of items;

forwarding the first set of items over a set of paths in a first configuration;

reconfiguring the set of paths into a second configuration; and

forwarding one or more items in the second set of items over the set of paths in the second configuration.

10 2. The method of claim 1, wherein said reconfiguring the set of paths into the second configuration is based on a random indication.

3. The method of claim 1, wherein said reconfiguring the set of paths into the second configuration includes modifying a reference value.

15 4. The method of claim 1, comprising placing the second set of items in a recirculation buffer.

5. The method of claim 4, comprising retrieving said one or more items in the second set of items from the recirculation buffer.

20 6. The method of claim 4, comprising identifying a status condition associated with each particular path of the set of paths corresponding to each of the items in the second set of items.

7. The method of claim 6, wherein said identifying the status condition includes referencing one or more data structures.

8. The method of claim 1, comprising identifying the status each path of the set of paths.

9. The method of claim 1, wherein the set of items includes packets or identifiers of packets.

10. The method of claim 1, wherein said reconfiguring the set of paths into the second configuration includes physically or logically adjusting the paths.

5 11. A computer-readable medium containing computer-executable instructions for performing the method of claim 1.

12. A method comprising:

identifying a random index;

10 repeating for each first particular packet of a first set of packets stored in a recirculation buffer:

determining whether the first particular packet can be sent over a first particular path of a plurality of paths, the first particular path identified based on the random index and a path occupancy; and

15 causing said first particular packet to be sent over the first particular path or to remain in the recirculation buffer based on the result of said determining whether the first particular packet can be sent; and

repeating to cause packets to be sent over a set of remaining paths of the plurality of paths not currently sent a packet from the recirculation buffer:

20 determining whether a second particular packet of a second set of received packets can be sent over a second particular path of a plurality of paths, the second particular path identified based on the random index and the path occupancy; and

25 causing said second particular packet to be sent over the second particular path or to remain in the recirculation buffer based on the result of said determining whether the second particular packet can be sent.

13. The method of claim 12 repeated once for each packet time.

14. The method of claim 12, wherein the path occupancy is determined based on a number of paths over which the first particular packet or the second particular packet is caused to be sent in a current packet time.

5 15. The method of claim 14, wherein the current packet time corresponds to a round of sending one packet over each of the plurality of paths.

16. The method of claim 12, wherein each of the plurality of paths corresponds to a different physical plane of a packet switching system.

10 17. The method of claim 12, wherein the plurality of paths does not include all of the planes of a packet switching system.

18. The method of claim 12, wherein the plurality of paths includes all of the planes of a packet switching system.

19. A computer-readable medium containing computer-executable instructions for performing the method of claim 12.

20. An apparatus for forwarding information over a plurality of paths, the apparatus comprising:

- a recirculation buffer to store a first set of packets;
- a random index generator to generate a random index;
- 5 an input to receive a second set of packets; and
- control logic coupled to the recirculation buffer, the random index generator, the set of paths, and the input;

wherein the control logic attempts to forward a packet over each of the plurality of paths each packet time from the first and second sets of packets with preference given to
10 the first set of packets, wherein a particular path for a particular packet is determined based on the random index and an occupancy rate of the plurality of paths during a particular packet time, and wherein a particular packet remains or is added to the recirculation buffer if it is not sent over one of the plurality of paths during the particular packet time.

15 21. The apparatus of claim 20, wherein the particular packet is not sent during the particular packet time if a destination of the particular packet is not reachable over its corresponding the particular path.

22. The apparatus of claim 21, comprising a storage mechanism coupled to the control logic to indicate whether the destination is reachable over the particular path.

23. An apparatus for forwarding information over a plurality of paths, the apparatus comprising:

- a buffer to store a first set of packets;
- a random index generator to generate a random index;
- 5 an input to receive a second set of packets;
- a set of switching logic coupled to the buffers and the plurality of paths; and
- control logic coupled to the buffer, the random index generator, the set of switching logic, and the input;

10 wherein during a packet time, the control logic attempts to forward each packet of the first set of packets through the switching logic over each of the plurality of paths each packet time; wherein the switching logic determines a particular path of the plurality of paths for a particular packet in the first set of packets based on the random index; and the control logic adds one or more packets from the second set of packets to replace packets sent from the first set of packets.

15 24. The apparatus of claim 23, wherein a particular packet of the first set of packets is not sent during the packet time if a destination of the particular packet is not reachable over its corresponding the particular path.

25. The apparatus of claim 24, comprising a storage mechanism coupled to the control logic to indicate whether the destination is reachable over the particular path.

26. An apparatus comprising:

means for buffering a set of items, said set of items including a first set of items
and a second set of items;

5 means for forwarding the first set of items over a set of paths in a first
configuration;

means for reconfiguring the set of paths into a second configuration; and

means for forwarding one or more items in the second set of items over the set of
paths in the second configuration.

27. The apparatus of claim 26, comprising:

10 means for placing the second set of items in a recirculation buffer; and

means for retrieving said one or more items in the second set of items from the
recirculation buffer.

28. The apparatus of claim 26, comprising means for identifying the status of said
paths.

29. An apparatus comprising:

means for identifying a random index;

means for determining whether the first particular packet can be sent over a first particular path of a plurality of paths, the first particular path identified based on the random index and a path occupancy; and

means for causing said first particular packet to be sent over the first particular path or to remain in the recirculation buffer based on the result of said determining whether the first particular packet can be sent; and

means for determining whether a second particular packet of a second set of received packets can be sent over a second particular path of a plurality of paths, the second particular path identified based on the random index and the path occupancy; and

means for causing said second particular packet to be sent over the second particular path or to remain in the recirculation buffer based on the result of said determining whether the second particular packet can be sent.

30. The apparatus of claim 29, wherein the path occupancy is determined based on a number of paths over which the first particular packet or the second particular packet is caused to be sent in a current packet time.